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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,562	12/22/2003	Remuga Gopal	NAA 0020 PA/41049.22	5054
23368 7590 09/30/2009 DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023				
EXAMINER DANIELS, MATTHEW J				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
09/30/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/743,562

Applicant(s)

GOPAL ET AL.

Examiner

MATTHEW J. DANIELS

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4 August 2009 has been entered.

Information Disclosure Statement

2. An article titled "Fabrication of a new composite orthodontic archwire and validation by a bridging micromechanics model" published in *Biomaterials*, Vol. 24 (2003), pp. 2941-2953, is present in the record for this case and lists as authors one or more of the instant inventors. That article also cites the following references (and others):

- [1] Kusy RP. A review of contemporary archwires: their properties and characteristics. *Angle Orthodontist* 1997;67(3):197-207.
- [2] Cohn ER, Dongelli P, Sassouni V, Sassouni A. A sample procedure to assess esthetic preferences for dentofacial treatment. *Am J Ortho* 1986;89:223-7.
- [3] Karmaker AC, DiBenedetto AT, Goldberg AJ. Continuous fiber reinforced composite materials as alternatives for metal alloys used for dental applications. *J Biomater Appl* 1997; 318-28.

- [4] Jancar J, Dibenedetto AT, Hadzianikolas Y, Goldberg AJ, Diamante A. Measurement of the elastic modulus of fiber-reinforced composites used as orthodontic wires. *J Mater Sci Mater Med* 1994;5:214-8.
- [5] Fallis DW, Kusy RP. Variation in flexural properties of photo-polymerized composite archwires: analyses of round and rectangular profiles. *J Mater Sci Mater Med* 2000;11:683-93.
- [6] Watari F, Yamagata S, Imai T, Nakamura S. The fabrication and properties of aesthetic FRP wires for use in orthodontics. *J Mater Sci* 1998;33:5661-4.
- [7] Toyozumi H, Watari F, Imai T, Yamagata S, Kobayashi M. Fabrication of aesthetic wires with flexural and torsional stiffness by photo curing method. *J Jpn Soc Dental Mater Dev* 1999;18(6):429-40.
- [8] Zifall SW, Kennedy KC, Kusy RP. Frictional characteristics of composite orthodontic archwires against stainless steel and ceramic brackets in the passive and active configurations. *J Mater Sci Mater Med* 1998;9:611-20.
- [9] Goldberg AJ, Burstone CJ. The use of continuous fiber reinforcement in dentistry. *Dent Mater* 1992;8(3):197-202.

References [1], [7], and [9] are present in the instant record. The titles of references [3], [4], [5], [6], and [8] suggest that these references are likely material to patentability, but have not been supplied on an information disclosure statement.

Inquiry under 35 USC § 102(f)

3. MPEP states the following regarding 35 USC 102(f):

Where there is a published article identifying the authorship (MPEP § 715.01(c)) or a patent identifying the inventorship (MPEP § 715.01(a)) that discloses subject matter being claimed in an application undergoing examination, the designation of authorship or inventorship does not raise a presumption of inventorship with respect to the subject matter disclosed in the article or with respect to the subject matter disclosed but not claimed in the patent so as to justify a rejection under 35 U.S.C. 102(f). However, it is incumbent upon the inventors named in the application, in reply to an inquiry regarding the appropriate inventorship under subsection (f), or to rebut a rejection under 35 U.S.C. 102(a) or (e), to provide a satisfactory showing by way of affidavit under 37 CFR 1.132 that the inventorship of the application is correct in that the reference discloses subject matter invented by the applicant rather than derived from the author or patentee notwithstanding the authorship of the article or the inventorship of the patent. In re Katz, 687 F.2d 450, 455, 215 USPQ 14, 18 (CCPA 1982) (inquiry is appropriate to clarify any ambiguity created by an article regarding inventorship,

and it is then incumbent upon the applicant to provide "a satisfactory showing that would lead to a reasonable conclusion that [applicant] is the...inventor" of the subject matter disclosed in the article and claimed in the application).

The article titled "Fabrication of a new composite orthodontic archwire and validation by a bridging micromechanics model" was submitted to the journal *Biomaterials* before the filing date of the instant application, and ultimately published in Vol. 24 (2003), pp. 2941-2953, of that journal. The article lists as its first author Zheng-Ming Huang and states "...we have developed a new method for the fabrication of a composite archwire. It is essentially based on tube shrinkage. Instead of using a curing die, the resin-impregnated yarn is introduced into a plastic tube, which is heat shrinkable." (see page 2942, right column) This article raises the question whether Zheng-Ming Huang conceived any part of the instant invention, and whether this application provides the appropriate inventorship.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-5, 7-12, and 14** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

See MPEP § 2172.01. The omitted step is believed to be a second step of heating and completely shrinking the die. Claim 1 recites placing the die containing the composite in a vacuum *prior to completely shrinking the die*, but omits the subsequent step of completely shrinking the die. Page 7 of the specification ([0036]-[0037]) suggests that a step of completely

shrinking the die is used between the steps of applying vacuum and removal from the die.

Omitting this step amounts to a gap between the steps.

Claim Rejections - 35 USC § 103

5. Rejections set forth previously under this section are withdrawn in view of the claim amendments.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
9/28/09